CLAIMS

What is claimed is:

1. In combination:

a probe card for testing a die on a wafer;

an energy transmissive element located adjacent to said probe card at a portion of said probe card;

wherein said energy transmissive element utilizes energy transmitted to selectively deflect a portion of said probe card to selectively control the geometric planarity of said probe card.

2. The combination of claim 1 wherein said energy transmissive element is located generally along a perimeter of said probe card.

3. The combination of claim 2 wherein said energy transmissive element is a thermal element employing thermal energy to selectively deflect a portion of said probe card.

4. The combination of claim 3 and further including a temperature sensor located near said energy transmissive element for monitoring temperature corresponding to deflection of said probe card.

5. The combination of claim 4 and further including a stiffening element attached to a face of said probe card and adapted to provide structural resistance to planarity deflection of said probe card.

6. The combination of claim 5 and further comprising means for facilitating radial expansion/contraction of said probe card with respect to said stiffening element.

7. The combination of claim 6 and further including a multi-layer element having a first layer and a second layer, said first layer and said second layer having different rates of expansion per unit of energy, said multi-layer element being attached to said probe card, wherein exposing said multi-layer element to energy causes said multi-layer element to selectively impart deflective forces to a portion of said probe card.

8. The combination of claim 7 wherein said multi-layer element includes two layers of different metals/alloys having a different coefficient of thermal expansion than the other.

9. The combination of claim 8 wherein said multi-layer element is located generally along a perimeter of said probe card.

10. The combination of claim 1 wherein said energy transmissive element is a thermal element employing thermal energy to selectively deflect a portion of said probe card.

11. The combination of claim 1 and further including a temperature sensor located near said energy transmissive element for monitoring temperature corresponding to deflection of said probe card.

12. The combination of claim 1 and further including a stiffening element attached to a face of said probe card and adapted to provide structural resistance to planarity deflection of said probe card.

13. The combination of claim 1 and further comprising means for facilitating radial expansion/contraction of said probe card with respect to said stiffening element.

14. The combination of claim 1 and further including a multi-layer element having a first layer and a second layer, said first layer and said second layer having different rates of expansion per unit of energy, said multi-layer element being attached to said probe card, wherein exposing said multi-layer element to energy causes said multi-layer element to selectively impart deflective forces to a portion of said probe card.

15. The combination of claim 14 wherein said multi-layer element includes two layers of different metals/alloys having a different coefficient of thermal expansion than the other.

16. The combination of claim 15 wherein said multi-layer element is located generally along a perimeter of said probe card.

17. In combination:

a probe card for testing a die on a wafer;

a multi-layer element having a first layer and a second layer, said first layer and said second layer having different rates of expansion per unit of energy, said multi-layer element being attached to said probe card, wherein exposing said multi-layer element to energy causes said multi-layer element to selectively impart deflective forces to a portion of said probe card.

18. The combination of claim 17 wherein said multi-layer element includes two layers of different metals/alloys having a different coefficient of thermal expansion than the other.

19. The combination of claim 17 wherein said multi-layer element is located generally along a perimeter of said probe card.

20. The combination of claim 19 wherein said multi-layer element includes two layers of different metals/alloys having a different coefficient of thermal expansion than the other.

21. The combination of claim 19 and further comprising a stiffening element and means for facilitating radial expansion/contraction of said probe card with respect to said stiffening element.

22. The combination of claim 17 and further comprising a stiffening element and means for facilitating radial expansion/contraction of said probe card with respect to said stiffening element.

23. In combination:

a probe card for testing a die on a wafer;

a stiffening element attached to a face of said probe card and adapted to provide structural resistance to planarity deflection of said probe card; and,

means for facilitating radial expansion/contraction of said probe card with respect to said stiffening element.

24. The combination of claim 23 wherein said means for facilitating radial expansion/contraction comprises rolling members between said probe card and said stiffening element.

25. The combination of claim 23 wherein said means for facilitating radial expansion/contraction comprises radially oriented slot connections between said probe card and said stiffening element.

26. The combination of claim 23 wherein said means for facilitating radial expansion/contraction comprises a lubrication layer between said probe card and said stiffening element.